Actiontec®

DSL Modem

Model #: GT724R

User Manual

Ver 1.1

Solutions for the Digital Life™

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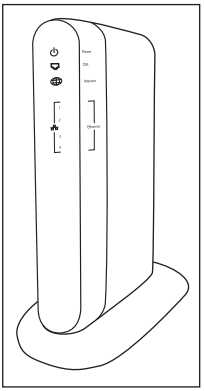
Introduction 1

Thank you for purchasing the Actiontec DSL Modem. The Modem is the simplest way to connect computers to a high-speed broadband connection. This easy-to-use product is perfect for the home office or small business. If you want to take your computing to the next level, the DSL Modem is sure to be one of the keys to your success.



Minimum System Requirements

- Active DSL service
- Computer with a 10 Mbps or 10/100 Mbps Ethernet connection
- Microsoft Windows 2000, XP, Vista
  Mac OS 7.1+, 8.0+, 9.0+, OS X+
- Internet Explorer 4.0 or higher (5.x+ recommended) or Netscape Navigator 4.0 or higher (4.7+ recommended)
- TCP/IP network protocol installed on each computer

Features

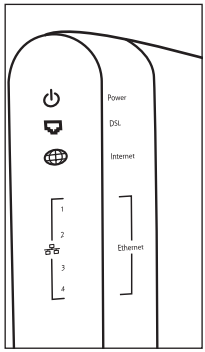
- ADSL WAN port (RJ-11)
- Full-rate ANSI T1.413 Issue 2, ITU G.992.1(G.dmt) and G.992.2(G.lite) standard compliance
- Auto-handshake for different ADSL services
- Bridged Ethernet over ATM, PPP over ATM, PPP over Ethernet
- Precise ATM traffic shaping
- IP packet routing and transparent bridge
- RIP-1, RIP-2, and static routing protocol support
- Built-in NAT, DHCP server
- DNS relay support
- PAP/CHAP authentication, administrative passwords through Telnet
- IEEE 802.3 Ethernet standard compliance
- 10/100 Base-T Ethernet ports (4)
- Fast Ethernet flow control support
- Web-based configuration setup
- FTP firmware upgradeable
- Web download support

Getting to Know the Modem

This section contains a quick description of the Modem's lights, ports, etc. The Modem has several indicator lights (LEDs) on its front panel and a series of ports on its rear panel.

Front Panel

The front panel of the Modem features seven lights: Power, DSL, Internet, and Ethernet (4).



Power Light

The Power light displays the Modem's current status. If the Power light glows steadily green, the Modem is receiving power and fully operational. When the Power light is rapidly flashing, the Modem is initializing. If the Power light glows red when the Power cord is plugged in, the Modem has suffered a critical error and technical support should be contacted.

DSL Light

The DSL light illuminates when the Modem is connected to a DSL line and the unit is able to synchronize to the DSL signal from the ISP. When it flashes, the Modem's built-in DSL modem is training for the DSL service.

Internet Light

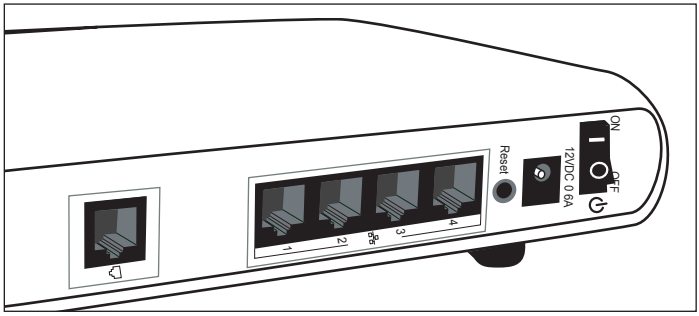
When the Internet light glows steadily, the Modem is connected to the DSL provider.

Ethernet Lights

The Ethernet lights illuminate when the Modem is connected to one or more computers via its yellow Ethernet ports.

Rear Panel

The rear panel of the Modem contains seven ports (Line, Ethernet [4], and Power), as well as Reset and Power switches.



Ethernet Ports

The Ethernet ports are used to connect computers to the Modem via Ethernet cable. The Ethernet ports are 10/100 Mbps auto-sensing ports, and either a straight-through or crossover Ethernet cable can be used when connecting to the ports.

Line Port

The Line port is used to connect the Modem to a DSL (Digital Subcriber Line) connection.

Reset Switch

Depressing the Reset switch restores the Modem's factory default settings. To reset the Modem, depress and hold the Reset switch for five to seven seconds. The reset process will start after releasing the switch, during which the Power light will turn from green to orange.

USB Port

The USB port is used to connect a computer to the Modem via USB cable.

Power Port

The Power port is used to connect the Power cord to the Modem.

Warning: Do not unplug the Power cord from the Modem during the reset process. Doing so may result in permanent damage to the Modem.

Power Switch

The Power switch is used to power the Modem on and off.

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Performing a Quick Setup

2

This chapter is a guide through a quick set up of the Modem, including how to connect the Modem to the ISP.

To complete the quick setup, have the Welcome Letter or ISP Worksheet handy. If the document is not available, contact the ISP immediately.

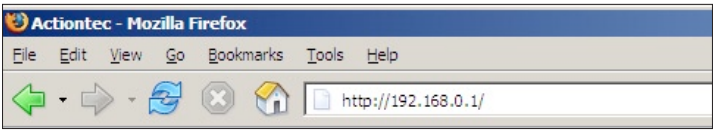
Accessing Quick Setup Screens

To access the Quick Setup screens:

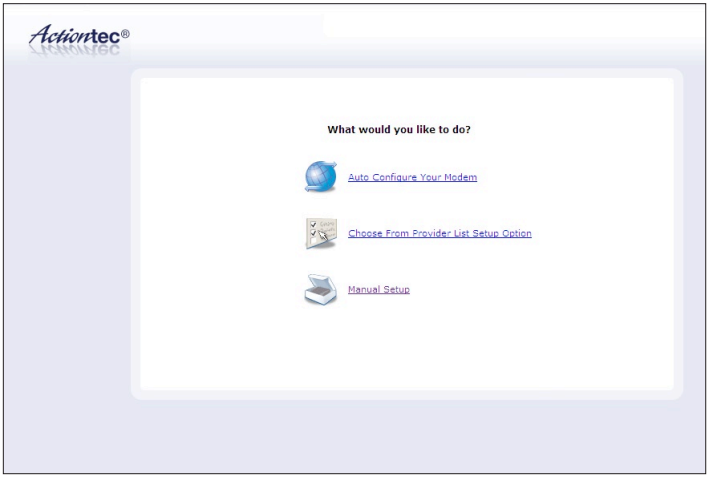
1. Open a Web browser. In the "Address" text box, type:

   `http://192.168.0.1`

   then press **Enter** on the keyboard.

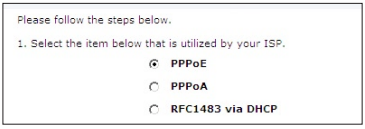


2. Another screen appears. Click **Manual Setup for Internet Access**.

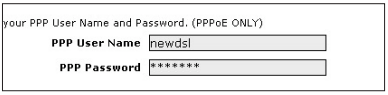


3. Follow the instructions in the "Welcome to the Quick Setup" screen, then click **Next**.

4. At the top of the next window, select **the type of connection used by the ISP.**

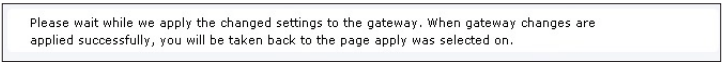


4a. If PPPoA or PPPoE was selected in step 4, the default user name and password are entered in the appropriate text boxes.
If "RFC1483 via DHCP" was selected, go to step 5.



5. Click **Apply** at the bottom of the screen.

6. Read the instructions on the next screen. The Modem is successfully configured.



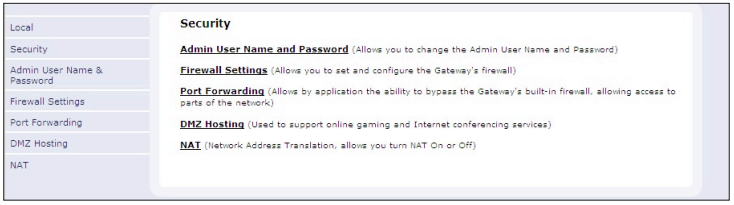
The Power light flashes rapidly while the Modem restarts, then glows steadily green when fully operational. The Internet light will also glow steadily green. The Modem is now configured and users can start surfing the Internet.
If an error appears, stating the Web browser was unable to connect to the Internet, check the configuration settings. Ensure all the information required by the ISP is entered correctly.

Changing the Password

To create or change the password allowing access to the Modem's Web Configuration screens, follow these instructions:

1. From the "Home" screen, select **Security**.

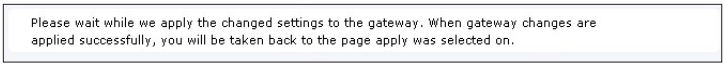
2. The "Security" screen appears. Select "Admin User Name and Password."



3. The "Change Admin Username/Password" screen appears. Enter a new Username in the "Admin User Name" text boxt, then enter a new password in the "Admin Password" text box. Make sure to write down the user name and password and keep it in a secure location. They will be needed to access the Modem's Web Configuration screens in the future.

4. Click **Apply** at the bottom of the screen.

5. Read the instructions on the next screen. The user name and password are successfully changed.



Once the Modem has rebooted, the new user name and password are active. To access the Modem's Web Configuration screens, the new user name and password must be entered.

Viewing the Modem's Status

3

After configuring the Modem, the Modem's connection and network status can be viewed. The Internet connection status is viewed in the "Broadband Connection Status" screen, while the network status is viewed in the "My Network" screen.

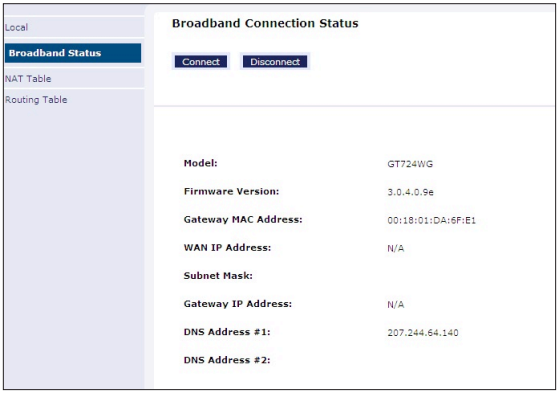
Broadband Connection Status

To view the Modem's connection statistics, select **Status** from the strip of icons at the top of any Gatetway GUI screen. The "Broadband Connection Status" screen appears. There are three sections in this screen: General Statistics, PPP Status, and DSL Status.

☞ ***Note:*** No settings (other than connecting or disconnecting from the Internet by clicking on **Connect** or **Disconnect**) can be changed from the Broadband Connection Status screen.

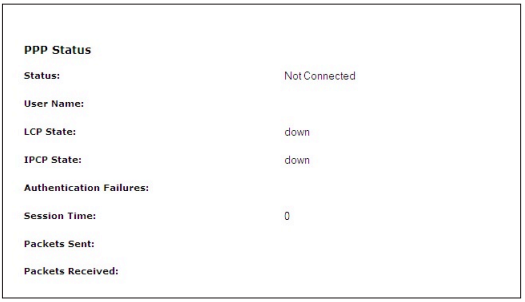
General Statistics

The top section of the Broadband Connection Status screen displays general statistics regarding the Modem, including model number, firmware version, IP address, and gateway IP address.



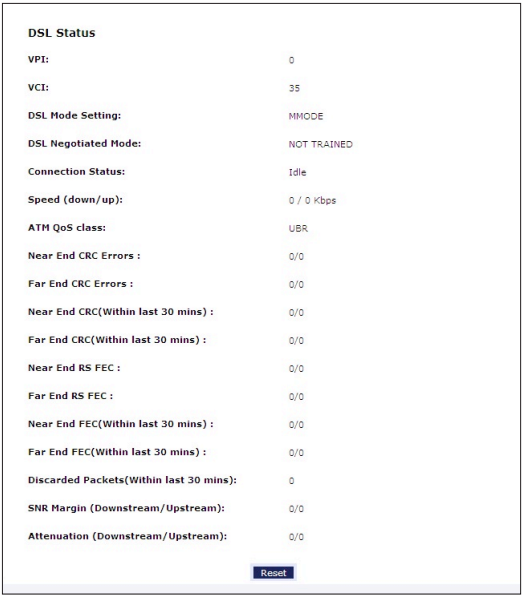
PPP Status

The middle section of the Broadband Connection Status screen displays the status of the Modem's PPP connection, including user name, authentication failures, and packets sent and received.



DSL Status

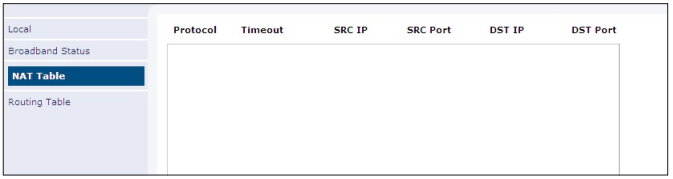
The bottom section of the Broadband Connection Status screen displays the status of the Modem's DSL connection, including mode settings, connection status, and number of discarded packets. Click **Reset** to refresh all statistics on this screen



In the menu on the left side of the Broadband Connection Status screen, there are two other options available to view: **NAT Table** and **Routing Table**. Click to generate the option of choice.

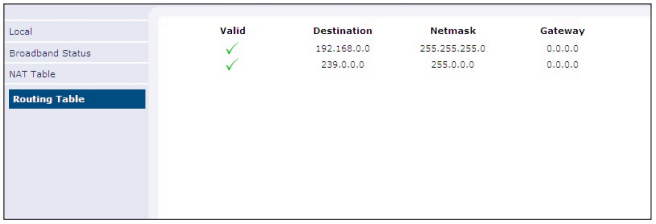
NAT Table

Selecting **NAT Table** generates the "NAT Table" screen. This screen displays an overview of the current list of open connections through NAT (Network Address Translation) the Modem supports between the networked computers and the Internet.



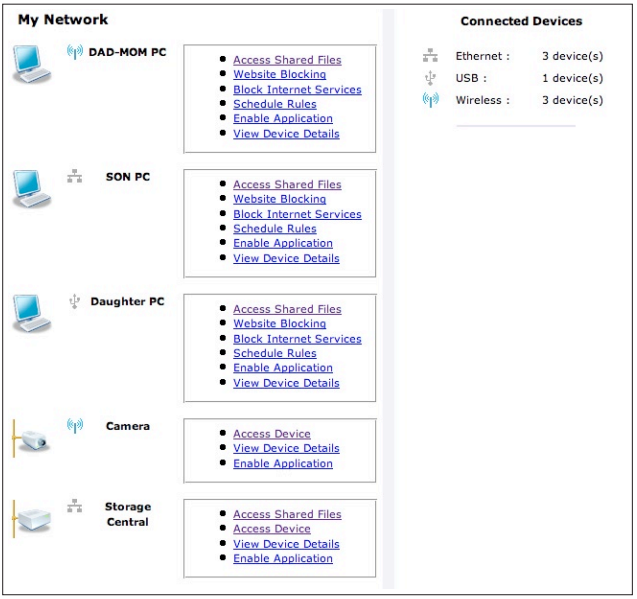
Routing Table

Selecting **Routing Table** generates the "Routing Table" screen. This screen displays an overview of the Modem's network routes.

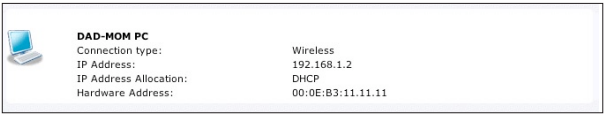


Network Status

To view the Modem's network status, select **My Network** from the strip of icons at the top of any Modem GUI screen. The "My Network" screen appears, listing all devices connected to the network. From this screen, various settings can be accessed, including Website blocking, Schedule Rules, and Enable Application.



To view the network status of a particular device, click **View Device Details** for the device. An overview of the device's network status appears.



Configuring Advanced Setup Options

4

This chapter explains how to configure the Modem's advanced setup options, such as Remote Management, DHCP settings, and Quality of Service (QoS).

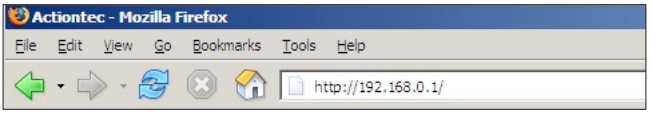
Accessing the Advanced Setup Options

To access the "Advanced Setup" options, follow these instructions:

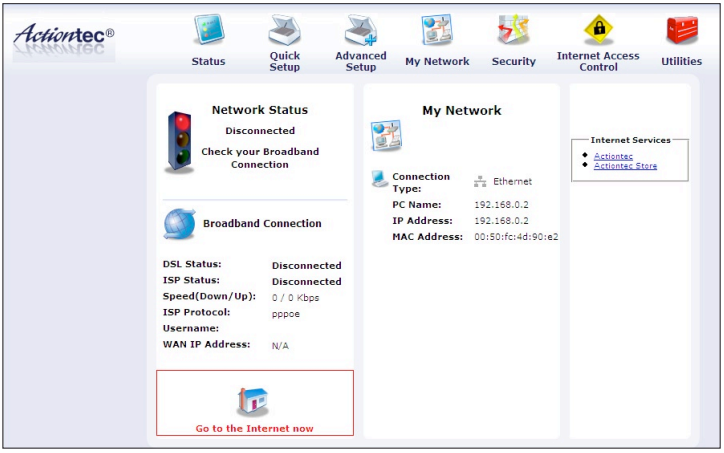
1. Open a Web browser. In the "Address" text box, type:

   `http://192.168.0.1`

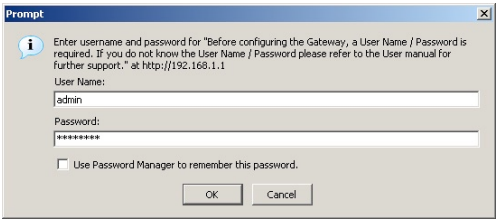
   then press **Enter** on the keyboard.



2. The Main screen appears. Click **Advanced Setup**.

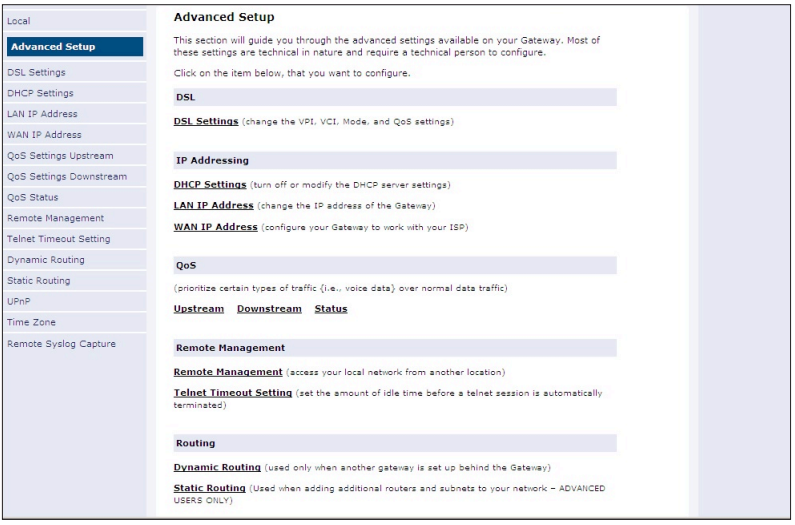


3. A login window appears. Enter the user name and password in the appropriate text boxes, then click **OK**.



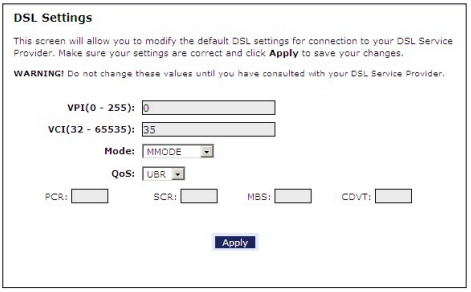
☞ ***Note:*** The default user name is "admin." The default password is "password."

4. The "Advanced Setup" screen appears. To modify a specific configuration, click on its name in the menu bar on the left, or from the list in the middle of the screen.



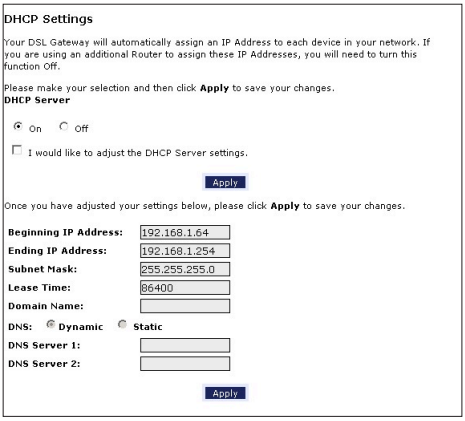
DSL Settings

To access DSL Settings, select **DSL Settings** from the "Advanced Setup" screen. The Modem's VPI, VCI, Mode, and QoS (Quality of Service) settings can be changed from this screen. We recommend not changing these values without first consulting the ISP.



DHCP Settings

Selecting **DHCP Settings** in the "Advanced Setup" screen generates the "DHCP Settings" screen. The Modem has a built-in DHCP (Dynamic Host Configuration Protocol) server that automatically assigns a different IP address to each computer on the network, eliminating IP address conflicts.
The factory default setting is **On**. To disable the DHCP Server, select **Off**, then click **Apply**.



We strongly recommend leaving the DHCP Server option **On**. If the DHCP Server option is **Off**, ensure the IP addresses of the networked computers are on the same subnet as the IP address of the Modem. For more information, see "DHCP Server Configuration."

DHCP Server Configuration

Clicking in the check box labeled "I would like to adjust the DHCP server settings" activates the text boxes at the bottom of the DHCP Settings screen. Change the IP address range and DNS server information in these text boxes.

Beginning IP Address

This is the IP address at which the DHCP server starts assigning IP addresses. We recommend keeping the factory default setting (192.168.0.2).

Ending IP Address

This is the IP address at which the DHCP server stops assigning IP addresses. We recommend keeping the factory default settings (192.168.0.254).

The beginning and ending IP addresses define the IP address range of the Modem. If the default values are left intact, the Modem supplies a unique IP address between 192.168.0.2 and 192.168.0.254 to each computer on the network. Note that the first three groups of numbers of the addresses are identical; this means they are on the same subnet. The IP address of the Modem must be on the same subnet as the IP address range it generates. For instance, if the Modem's IP address is changed to 10.33.222.1, set the beginning IP address to 10.33.222.2, and the ending IP address to 10.33.222.254.

Subnet Mask

Enter the IP address of the DHCP server's subnet mask here.

Lease Time

This value represents the amount of time (in seconds) the DHCP server holds onto a specific IP address.

Domain Name

This is the domain name provided by the ISP. If the ISP provided domain name information, enter it here. If not, leave the text box intact.

DNS (Dynamic or Static)

This is the type of DNS server provided by the ISP. If ISP provided DNS server information, select the type here. If not, leave as is.

DNS Server 1

This is the primary DNS server provided by the ISP. If the ISP provided DNS server information, enter it here. If not, leave the text box intact.

DNS Server 2

This is the secondary DNS provided by the ISP. If the ISP provided secondary DNS server information, enter it here. If not, leave the text box intact.

When finished in this screen, click **Apply** to activate any changes made.

LAN IP Address

Selecting **LAN IP Address** in the "Advanced Setup" screen causes a warning screen to appear.

Read the on-screen warning, then click **Yes** to continue.

The "LAN IP Address" screen appears.

The values in the "Modem IP Address" and "Modem Subnet Mask" text boxes are the IP and subnet mask address of the Modem as seen on the network. These values can be modified for your LAN network, but we recommend keeping the default factory settings (IP address 192.168.0.1; subnet mask address 255.255.255.0).

Note: If the Modem's LAN IP Address is modified, verify the DHCP Server range is within the same subnet. For more information, see "DHCP Server Configuration."

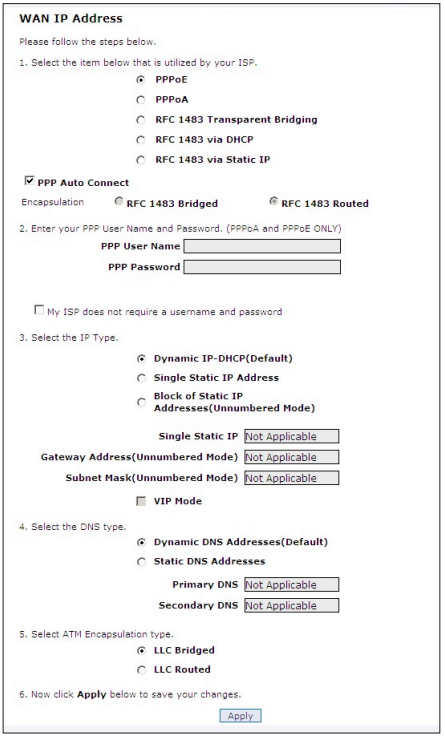
When finished in this screen, click **Apply** to activate any changes made.

WAN IP Address

Selecting **WAN IP Address** in the "Advanced Setup" screen causes a warning screen to appear.

Read the on-screen warning, then click **Yes** to continue.

The "WAN IP Address" screen appears.



WAN IP Address allows manual set up of the IP address of the Modem. To do this:

☞ ***Note***: Some DSL providers use PPPoE to establish communication with an end user. Other types of broadband Internet connections (such as fixed point wireless) may use either DHCP or static IP address. If unsure which connection is present, check with Verizon before continuing.

1. Select the type of connection the ISP uses. If PPP Auto Connect is being used, click in the appropriate check box.

2. If using PPPoA or PPPoE was selected in step 1, enter the user name and password in the appropriate text boxes. If the ISP requires no user name or password, click in the "My ISP does not require a username and password" check box.

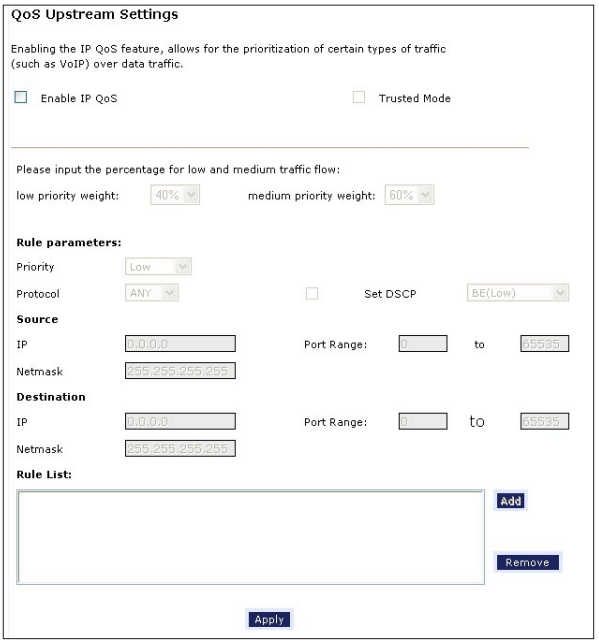
3. Select the IP type. If "Single Static IP Address" was selected, enter the IP address in the "Single Static IP" text box. If "Block of Static IP Addresses" was selected, enter the designated gateway IP address and subnet mask address in the "Modem Address" and "Subnet Mask" text boxes, respectively. Also, "VIP Mode" can be activated by clicking in the appropriate check box.

4. Select the DNS type. If static DNS address was selected, enter the primary DNS address and, optionally, the secondary DNS address in the appropriate text boxes.

When finished in this screen, click **Apply** to activate any changes made.

QoS Settings Upstream

Selecting **QoS Settings Upstream** from the "Advanced Setup" screen causes the "QoS Upstream Settings" screen to appear.



QoS (Quality of Service) allows the prioritization of certain types of data traffic (such as VoIP traffic) over other types of traffic (such as standard data). Both upstream (data coming into the network) and downstream (data going out of the network) traffic can be prioritzed using QoS.

Enable QoS

Clicking in this check box activates/deactivates QoS.

Trusted Mode

If "Trusted Mode" is activated, all data traffic set to an IP precedence level of 5 will be recognized as high priority traffic, regardless of IP or MAC address rule settings (used for VoIP only).

Total Available Bandwidth

Displays the total amount of available bandwidth (in kilobits per second).

High Priority Bandwidth

Enter the amount of high priority bandwidth to be used by the prioritized traffic type (cannot exceed total available bandwidth).

Priority

Always set to "High" and cannot be changed.

Protocol

Select the data type being configured. Options: TCP, UDP, ICMP.

Source

Identify the source device here, using the device's IP or MAC address, then enter appropriate value in text box. If IP is used, enter the netmask address, if applicable. A priority port range can also be defined, using the "Port Range" text boxes.

Destination

Identify the destination device here, using the device's IP address, then enter appropriate value in text box. Enter the netmask address, if applicable. A priority port range can also be defined, using the "Port Range" text boxes.

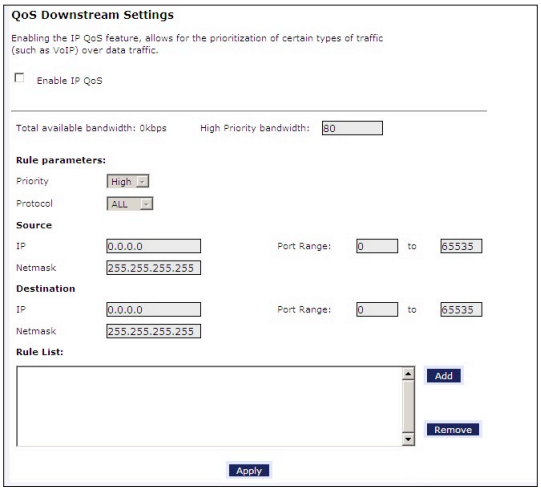
Rule List

After finishing the configuration of the QoS settings, click **Add** to save the settings in the Rule List menu box. This collection of QoS settings can then be reused at a future time. If deleting a QoS rule list, highlight it, then click **Remove**.

When finished in this screen, click **Apply** to activate any changes made.

QoS Settings Downstream

Selecting **QoS Settings Downstream** from the "Advanced Setup" screen causes the "QoS Downstream Settings" screen to appear.

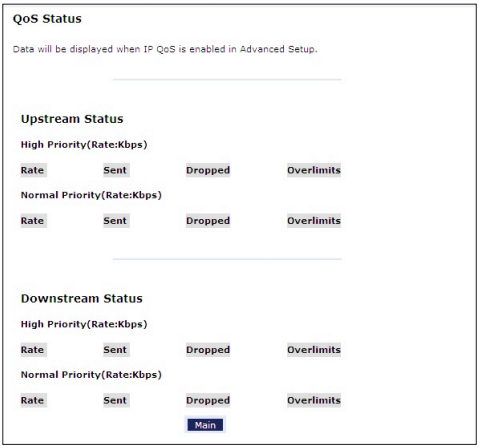


The "QoS Downstream Settings" screen is identical to the "QoS Upstream Settings" screen, with the exception of the "Trusted Mode" and "Set IP Precedence" options. Use this screen to configure QoS for data going out of the network.

When finished in this screen, click **Apply** to activate any changes made.

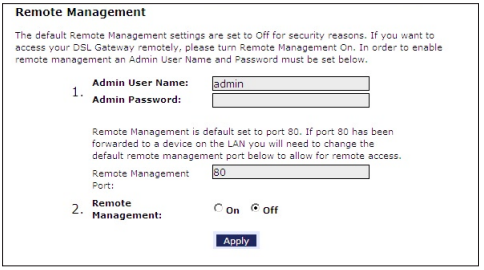
QoS Status

Selecting **QoS Status** from the "Advanced Setup" screen causes the "QoS Status" screen to appear. This screen displays the status of QoS upstream and downstream traffic, and differentiates both streams into high priority and normal priority traffic.



Remote Management

Selecting **Remote Management** in the "Advanced Setup" screen generates the "Remote Management" screen. Remote management allows access to the Modem through the Internet via another computer. The Modem will be vulnerable to other users on the Internet if Remote Management is activated.



To access the Modem remotely:

1. Enter a user name and password in the appropriate text boxes.

2. Enter a port number through which the Modem will be accessed. Port 80 is the default port number.

3. Activate Remote Management by selecting the appropriate **On** radio button.

4. Write down the WAN IP address of the Modem (see "WAN IP Address").

5. On a computer outside of the network, open a Web browser and enter the Modem's WAN IP address in the Address text box. The Modem's Home screen (or a password prompt, if a password has been set) appears in the browser window.

   Note: If the default port (80) of the Modem has been changed, the user may need to enter the WAN IP, a colon (:), and the new port number. For example, if the WAN IP is 71.251.176.63, and the port has been changed to 8081, enter

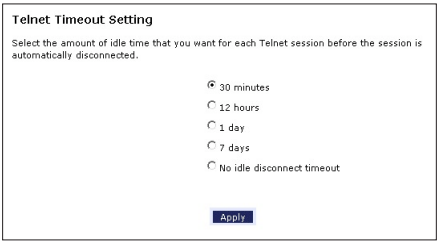
   `http://71.251.176.63:8081`

   to remotely access the Modem.

When finished in this screen, click **Apply** to activate any changes made.

Telnet Timeout Setting

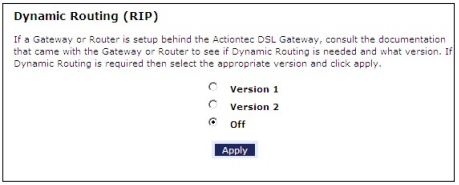
Selecting **Telnet Timeout Setting** in the "Advanced Setup" screen generates the "Telnet Timeout Setting" screen. Select a period of time from the choices available, and the Telnet session will automatically terminate at that time. If no automatic termination is needed, select "No idle disconnect timeout."



When finished in this screen, click **Apply** to activate any changes made.

Dynamic Routing

Selecting **Dynamic Routing** in the "Advanced Setup" screen generates the "Dynamic Routing" screen.

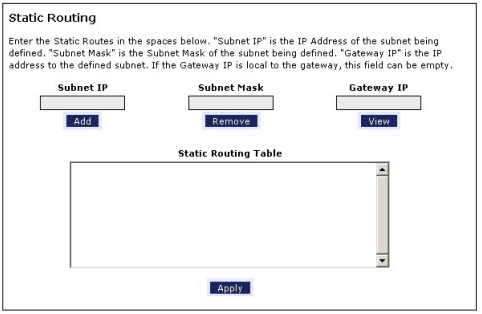


If another gateway or router is set up behind the Modem in the network configuration, consult the documentation that came with the other gateway to see what kind of Dynamic Routing is required, then select the needed option.

When finished in this screen, click **Apply** to activate any changes made.

Static Routing

Selecting **Static Routing** in the "Advanced Setup" screen generates the "Static Routing" screen. Enter the static route addresses in their respective text boxes, then click **Add**. The address will appear in the "Static Routing Table." To remove an address, highlight it by clicking on it in the Static Routing Table, then click **Remove**.



When finished in this screen, click **Apply** to activate any changes made.

UPnP (Universal Plug and Play)

Selecting **UPnP** in the "Advanced Setup" screen generates the "UPnP" screen. In this screen, the Universal Plug and Play option is turned on or off by activating the appropriate circle.

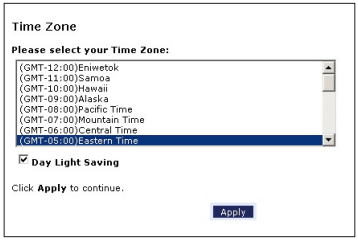
Universal Plug and Play is a zero-configuration networking protocol that allows hardware and software (such as Netmeeting) to operate more efficiently. If Netmeeting is not running properly, activate UPnP.

☞ ***Note***: Activating UPnP presents a slight security risk. After finishing with the hardware or software using UPnP, we recommend deactivating UPnP.

When finished in this screen, click **Apply** to activate any changes made.

Time Zone

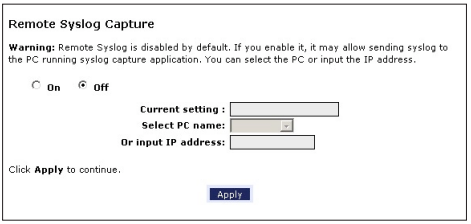
Selecting **Time Zone** in the "Configuring the Advanced Settings" screen generates the "Time Zone" screen. In this screen, select the time zone in which the Modem is being used. Click in the "Day Light Saving" check box if Daylight Saving Time is currently in effect where the Modem is being used.



When finished in this screen, click **Apply** to activate any changes made.

Remote Syslog Capture

Selecting **Remote Syslog Capture** in the "Advanced Setup" screen generates the "Remote Syslog Capture" screen. In this screen, the user can configure the Modem to allow a remote computer to access the Modem's system activity logs.



When finished in this screen, click **Apply** to activate any changes made.

Configuring Security Settings

5

This chapter explains how to configure the Modem's wired security capabilities, including firewall settings, DMZ hosting, and network address translation.

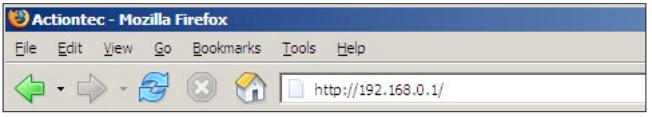
Accessing Wired Security Screens

To access the Wired Security configuration screens, follow these instructions:

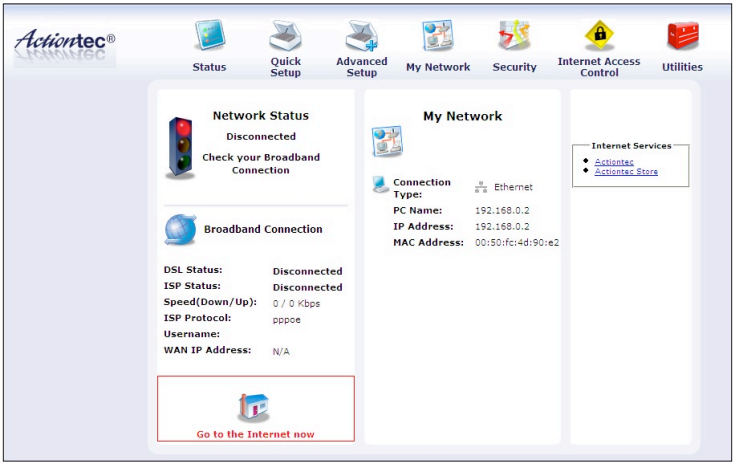
1. Open a Web browser. In the "Address" text box, type:

   `http://192.168.0.1`

   then press **Enter** on the keyboard.



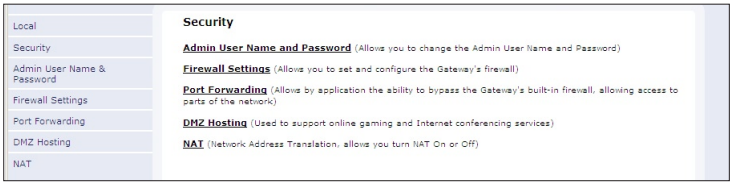
2. The Main screen appears. Click **Security**.



3. A login window appears. Enter the user name and password in the appropriate text boxes, then click **OK**.

☞ ***Note:*** The default user name is "admin." The default password is "password."

4. The "Security" screen appears. To modify a specific configuration, click on its name in the menu bar on the left, or from the list in the middle of the screen.



Admin User Name and Password

See "Changing the Password" on page 9.

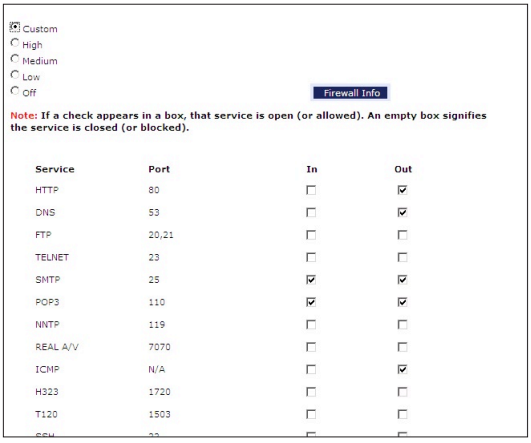
Firewall

Selecting **Firewall** in the Security screen generates the "Firewall Settings" screen. Select the level of security needed for the network.

☞ ***Note***: If VPN connections need to made through the Modem, the Firewall must be set to Off. No VPN connections can be made if the Firewall setting is at Custom, High, Medium, or Low. Also note that DMZ hosting, Port Forwarding, and Application Level Modem settings are active only when the Firewall is Off.

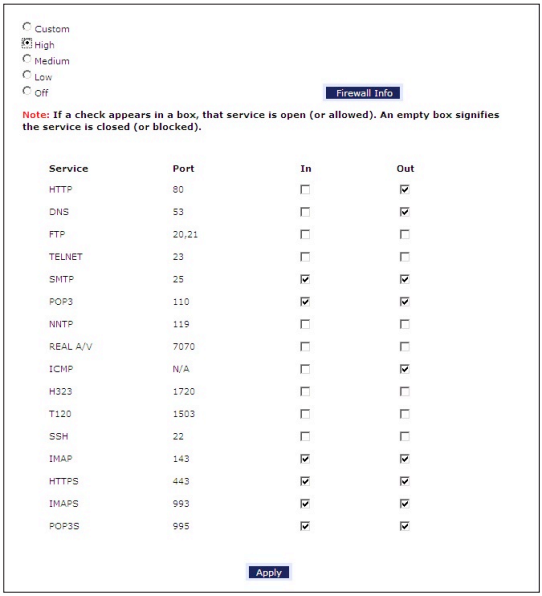
Custom

If **Custom** is selected in the "Firewall Security Level" screen, the user can select which of the services listed in the window can pass through the firewall (both in and outthe services listed at the bottom of the screen. Remember that checking a box opens the service; a blank check box indicates that the service is blocked. Only experienced network administrators should select and use the Custom Firewall option.



High

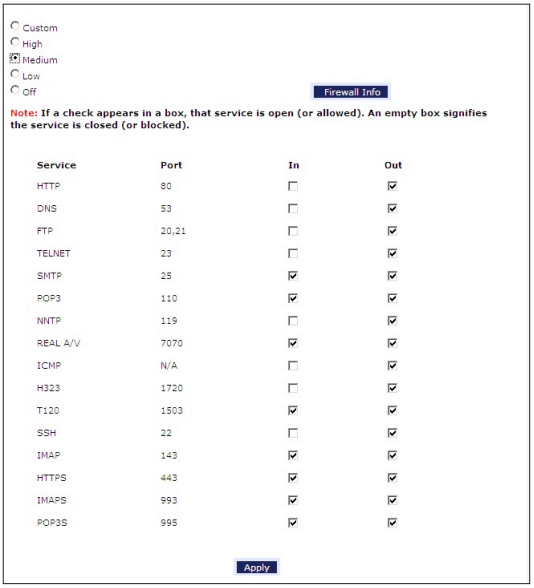
If **High** is selected in the "Firewall Security Level" screen, the services with a check mark beside them will remain open (either incoming, outgoing, or both, depending on the checkmarks), as shown in the figure below. These settings can be modified to customize the firewall settings.



When finished with this screen, click **Apply** to save the changes.

Medium

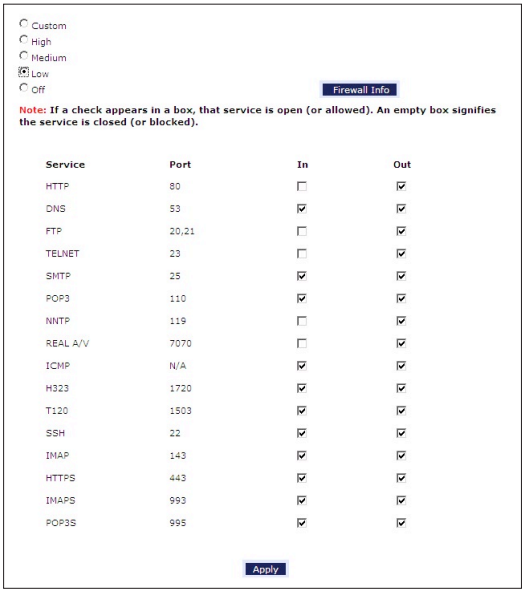
If **Medium** is selected in the "Firewall Security Level" screen, the services with a check mark beside them will remain (either incoming, outgoing, or both, depending on the checkmarks), as shown in the figure below. These settings can be modified to customize the firewall settings.



When finished with this screen, click **Apply** to save the changes.

Low

If **Low** is selected in the "Firewall Security Level" screen, the services with a check mark beside them will remain open (either incoming, outgoing, or both, depending on the checkmarks), as shown in the figure below. These settings can be modified to customize the firewall settings.



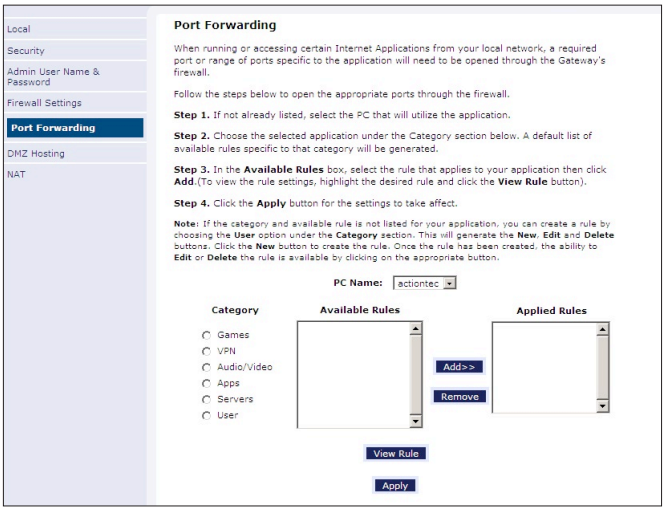
Off

If **Off** is selected in the "Firewall Security Level" screen, firewall filtering is based solely on the basic NAT firewall. At this setting, VPN connections can be made, and DMZ hosting, Port Forwarding, and Applicatiion Level Modem settings are active.

☞ ***Note***: See "Service Acronyms," for a description of the services listed in the Firewall Security Level screens.

Port Forwarding

Selecting **Port Forwarding** in the Security screen generates the "Port Forwarding" screen.



This screen allows certain programs to bypass the Modem's built-in firewall, allowing access to parts of the network (for hosting a Web or ftp server, for example). To use, select the name of a computer on the network from the "PC Name" drop-down list, then click **Add**. Next, select a "Category" by clicking the appropriate radio button. In the "Available Rules" list box, select a game, application, server, etc., then click **Add**>>. The selected item appears in the "Applied Rules" list box. Repeat for each item needed

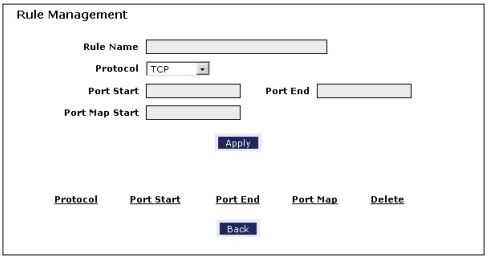
To remove an item from the Applied Rules list, highlight it, then click **Remove**.

To view an item's rules (forwarded ports, etc.), highlight it, then click **View Rule.**

When finished with this screen, click **Apply** to save the changes.

Rule Management

To create a custom set of rules, click the "User" radio button, then click **New**. The "Rule Management" screen appears.



In this screen, the user can create a custom rule not defined in the programming. To do this (using a single port):

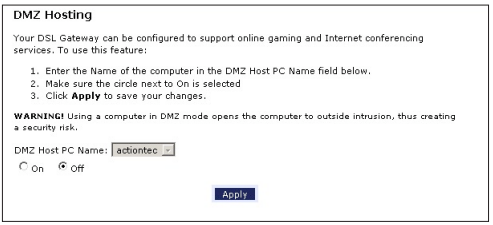
1. Enter the rule name in the "Rule Name" text box. The name is usually based on the application or game title.
2. Set "Protocol" to "TPC."
3. Enter the port number in the "Port Start," "Port End," and "Port Map Start" text boxes. For example, if a server is running on port 8080, enter "8080" in all three text boxes.
4. Click **Apply**.
5. Change Protocol to "UDP."
6. Enter the port number again, as in step 3.
7. Click **Apply** again. The rule's TPC and UDP mapping appear at the bottom of the screen.
8. Click **Back**.
9. Select the computer on which to open the ports, then click **User**.
10. Select the rule, then click **Add** to move the rule to the "Applied Rule" text box.
11. Click **Apply**.

For multiple ports:

1. Enter the rule name in the "Rule Name" text box. The name is usually based on the application or game title.
2. Set "Protocol" to "TPC."
3. Enter the starting port number of the port range in the "Port Start" and "Port Map Start" text boxes, and the last port of the range in the "Port End" text box. For example, if the port range is 5000 to 6000, enter "5000" in the "Port Start" and "Port Map Start" text boxes, and "6000" in the "Port End" text box.
4. Click **Apply**.
5. Change Protocol to "UDP."
6. Enter the port numbers again, as in step 3.
7. Click **Apply** again. The rule's TPC and UDP mapping appear at the bottom of the screen.
8. Click **Back**.
9. Select the computer on which to open the ports, then click **User**.
10. Select the rule, then click **Add** to move the rule to the "Applied Rule" text box.
11. Click **Apply**.

DMZ Hosting

Selecting **DMZ Hosting** in the "Security" screen generates the "DMZ Hosting" screen. To use DMZ hosting, select the computer on the network to be used as a DMZ host in the "DMZ Host PC Name" drop-down menu, then click **On**.

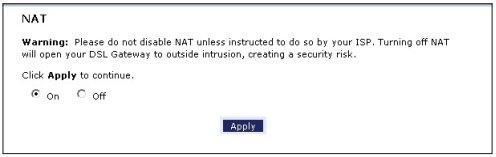


DMZ hosting is used to support online gaming and Internet conferencing services. These programs usually require multiple open ports, making the network accessible from the Internet. DMZ hosting symbolically places the DMZ host computer outside of the Modem's network. We recommend activating DMZ hosting only as long as necessary.
When finished with this screen, click **Apply** to save the changes.

Warning: The DMZ Host computer will be vulnerable to computer hackers on the Internet while in DMZ mode.

NAT (Network Address Translation)

Selecting **NAT** in the "Security" screen generates the "NAT" screen. The Modem's basic firewall security is based on NAT. Disabling NAT allows the computers connected to the Modem to be accessed by outside parties, and can cause the loss of Internet connectivity. Do not turn NAT off unless instructed to do so by the ISP.



When finished, click **Apply** to save the changes.

Configuring Internet Access Controls

6

This chapter explains how to configure the Internet access controls of the Modem, such as services blocking, Web site blocking, and schedule rules.

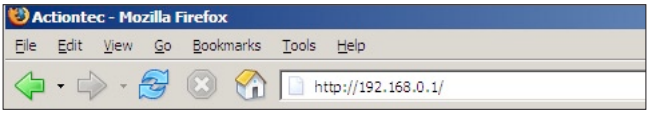
Accessing Internet Access Control Screens

To access the Internet Access Control configuration screens, follow these instructions:

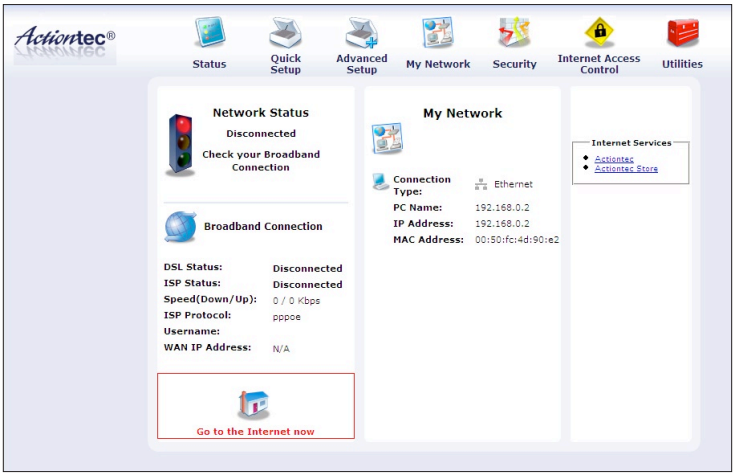
1. Open a Web browser. In the "Address" text box, type:

`http://192.168.0.1`

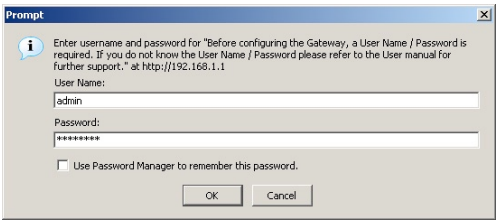
then press **Enter** on the keyboard.



2. The Main screen appears. Click **Internet Access Control**.



3. A login window appears. Enter the user name and password in the appropriate text boxes, then click **OK**.

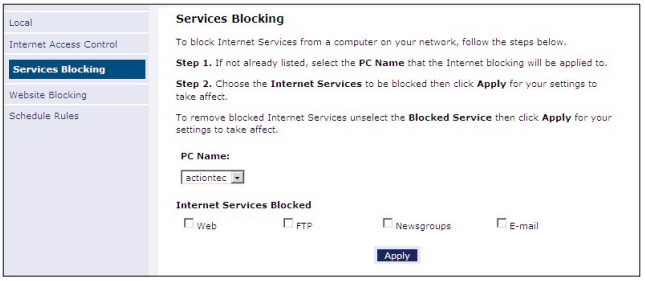


☞ ***Note:*** The default user name is "admin." The default password is "password."

4. The "Internet Access Control" screen appears. To modify a specific setting, click on its name in the menu bar on the left, or from the list in the middle of the screen.

Services Blocking

Selecting **Services Blocking** in the Internet Access Control screen generates the "Services Blocking" screen.



To modify Internet privileges (Web, FTP, Newsgroups, etc.) for the computers on the network:

1. Select the computer's network name from the "PC Name" drop-down menu.

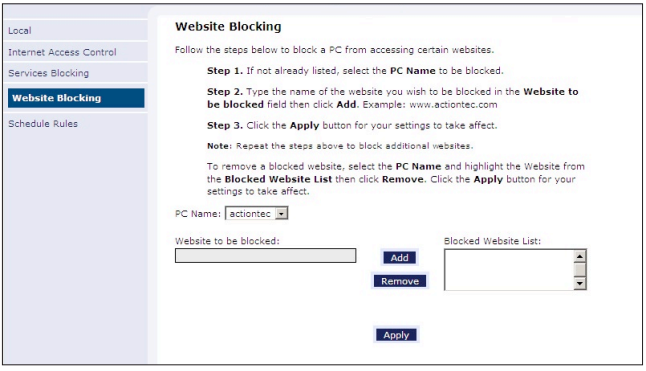
2. Select the Internet service(s) to be blocked by clicking in the appropriate check box.

3. Click **Apply** to block the selected service from the selected computer.

Website Blocking

Selecting **Website Blocking** in the Internet Access Control screen generates the "Website Blocking" screen. This feature enables the Modem to block Web sites to any or all computers on the network. To block a Web site, select the computer name from the "PC Name" drop-down menu. Then, enter the address of the Web site to be blocked in the "Website" text box and click **Add**. The blocked Web site address will be displayed in the "Blocked Website List" text box, and will not be available to the selected computer on the network. To block the Web site from another computer on the network, repeat the process. To remove a blocked Web site, click on it in the "Blocked Website List," then click **Remove**. When finished, click **Apply**.

Any changes made in this screen may take up to five minutes to be applied.



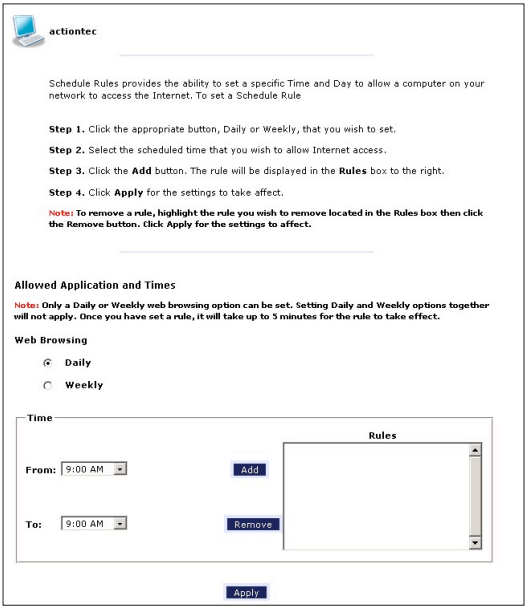
Schedule Rules

Selecting **Schedule Rules** in the Internet Access Control screen generates the "Schedule Rules" screen. Schedule rules allow computers on the network to access the Internet at scheduled times only.

To set up schedule rules for a computer on the network:

1. Select the computer's network name from the "PC Name" drop-down menu.

2. Click **View/Edit Access Details**. The computer's "Allowed Application and Times" screen appears.

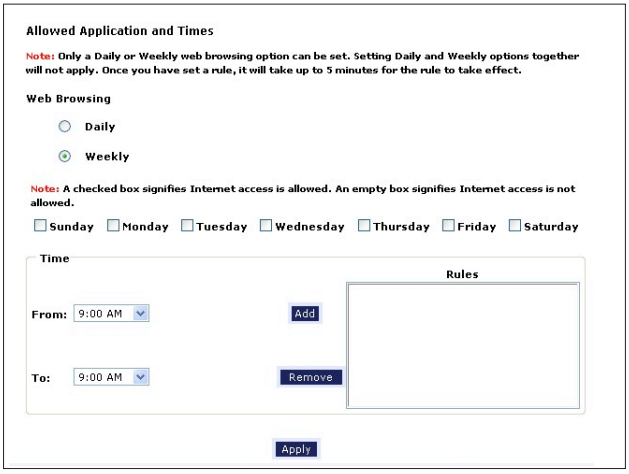


3. To schedule Internet access at the same time every day, select "Daily" by clicking the appropriate radio button. If creating different access schedules on a day-to-day basis, select "Weekly."

4a. If "Daily" was selected in step 3, create a period of Internet access (or rule) by selecting a beginning time (from the "From" drop-down menu) and ending time (from the "To" drop down menu). If allowing Internet access to a particular computer from 6 p.m. to 8 p.m., for example, select "18 (6 pm)" from the From drop-down menu, and "20 (8 pm)" from the To drop-down menu. Click **Add** to add the access period to the "Rules" list box. Additional access periods can be added by repeating this step (9 a.m. through 12 p.m., for example), and adding it to the Rules list box. Once the rules are applied in the Daily screen, Internet access will be granted every day at the times listed in the Rules list box.

☞ ***Note:*** When using "Daily" scheduling, an access period cannot include 12 a.m (midnight). To create an access period that includes midnight, create two access periods, one that ends at 12 a.m., and one that begins at 12 a.m.

4b. If "Weekly" was selected in step 3, periods of Internet access can be scheduled at different times on different days (6 p.m. to 8 p.m. on Friday, and 1 p.m. to 4 p.m. on Saturday, for example). To do this, select the day of the week by clicking in the appropriate check box, then create a access period (or rule), as explained in step 4a. Click **Add** for each separate time period. All access periods created will appear in the Rules list box. Once the rules are applied in the Weekly screen, Internet access will be granted to a particular computer at the days and times selected on a weekly basis.



☞ ***Note:*** When using "Weekly" scheduling, an access period cannot include 12 a.m (midnight). To create an access period that includes midnight, create two access periods, one that ends at 12 a.m. on one day, and one that begins at 12 a.m on the following day.

5. When finished with all scheduling, click **Apply** to save the changes to the Modem.

Removing a Schedule Rule

To remove a scheduled rule, select it from the Rules list box, then click **Remove**. The schedule rule will disappear from the Rules list box.

Configuring the Modem's Utilities

7

This chapter explains how to use the Modem's utilities, including how to restore default settings, upgrade the Modem's firmware, and perform a ping test.

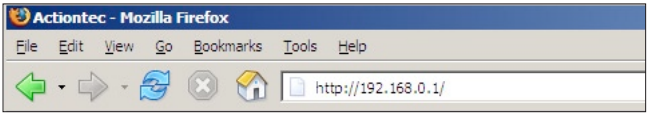
Accessing the Utilities Screens

To access the Utilities configuration screens, follow these instructions:

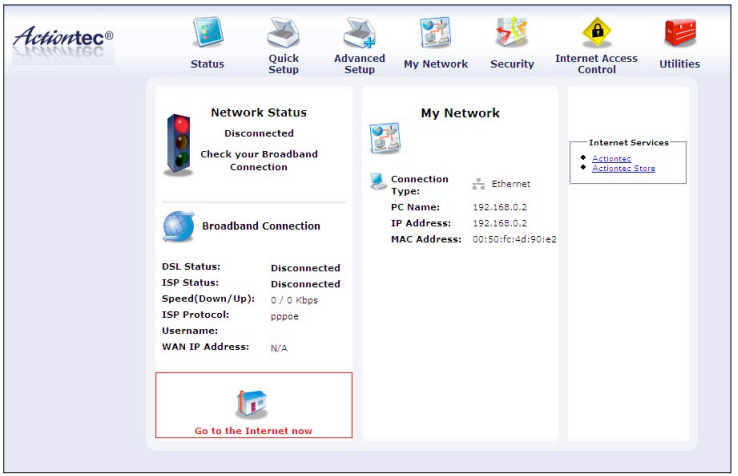
1. Open a Web browser. In the "Address" text box, type:

   http://192.168.0.1

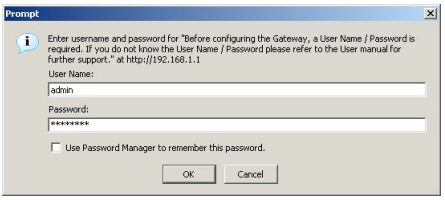
   then press **Enter** on the keyboard.



2. The Main screen appears. Click **Utilities**.

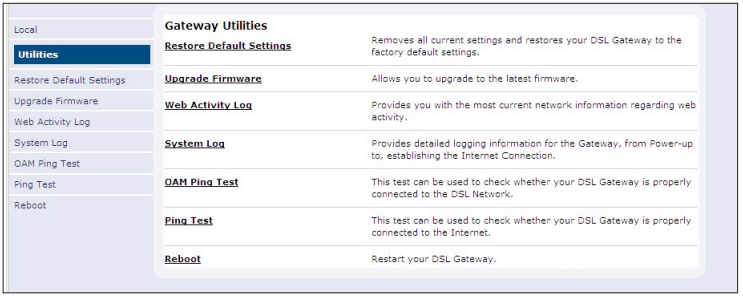


3. A login window appears. Enter the user name and password in the appropriate text boxes, then click **OK**.



☞ ***Note:*** The default user name is "admin." The default password is "password."

4. The "Utilities" screen appears. To modify a specific configuration, click on its name in the menu bar on the left, or from the list in the middle of the screen.



Restore Default Settings

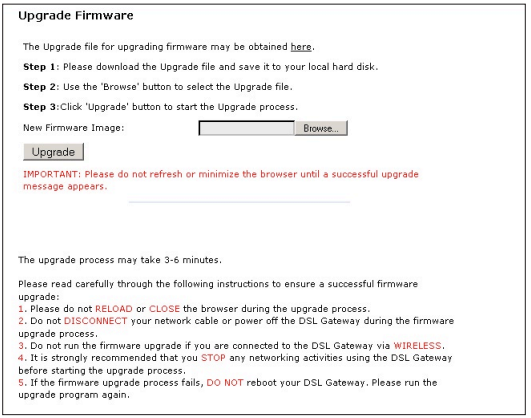
To restore the Modem to its factory default settings, select **Restore Default Settings** from the Utilities screen. When the "Restore Default Settings" screen appears, click **Restore Default Settings**. Any changes made to the Modem's settings will be lost and the factory default settings restored. During this process, the Modem's Power light flashes and the Modem is disabled.

Warning: Do not unplug the Power cord from the Modem during the Restore Default Settings process. Doing so may result in permanent damage to the Modem.

When the Power Light stops flashing and glows steadily green, the Modem is | fully operational.

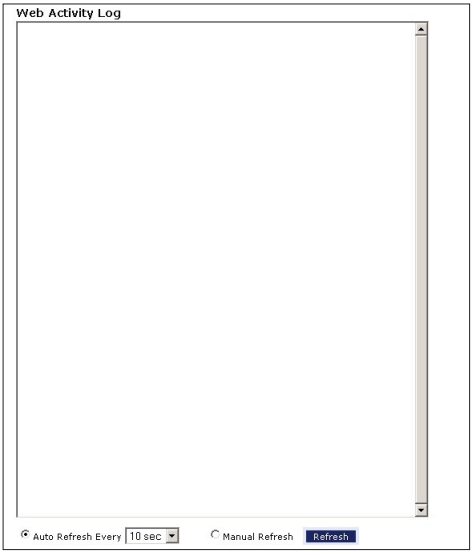
Upgrade Firmware

Selecting **Upgrade Firmware** in the Utilities screen generates the "Upgrade Firmware" screen. Firmware upgrades are periodically released to enhance the Modem's capabilities. Follow the instructions on-screen to upgrade the Modem's firmware.



Web Activity Log

The Web Activity Log provides information about the Web sites each computer on the Modem's network has visited. To access the Web Activity Log, select **Web Activity Log** from the Utilities screen.



Auto Refresh

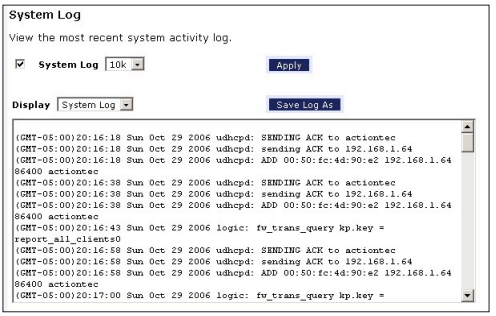
To set the Web Activity Log screen to automatically refresh at certain intervals, activate the circle next to "Auto Refresh Every" at the bottom of the Web Activity Log screen, then enter a time value (in seconds) in the text box, or click on the down arrow and select a time value from the menu that appears. The Web Activity Log will refresh at the selected interval.

Manual Refresh

To set the Web Activity Log screen to manually refresh, activate the circle next to "Manual Refresh" at the bottom of the Web Activity Log screen. To refresh the Web Activity Log screen, click **Refresh**.

System Log

The System Log provides information about the Modem's activity. To access the System Log, select **System Log** from the Utilities screen.



System Log (Size)

Select the size of the system log displayed here. The smaller the size, the shorter the length of the system log saved.

Display

View other saved logs by selecting a log from this drop-down list.

Apply

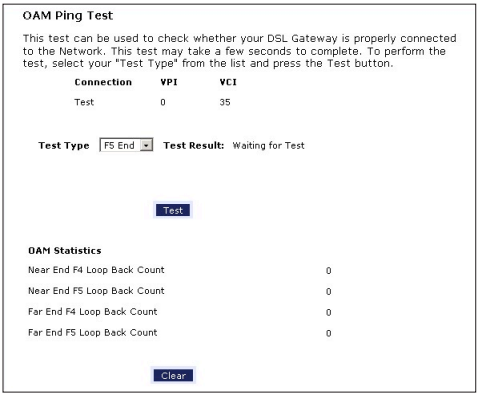
Pressing this button saves any changes to the System Log screen and causes the Save and Restart screen to appear.

Save Log As

Pressing this button allows the user to save a log as a file.

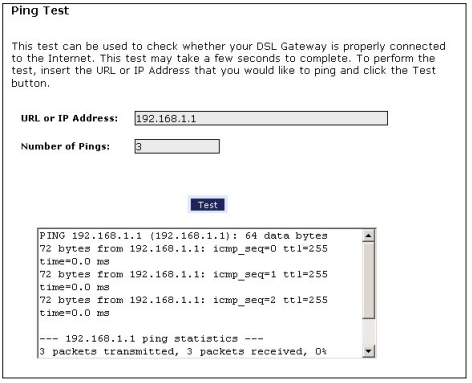
OAM Ping Test

Selecting **OAM Ping Test** from the Utilities screen generates the "OAM Ping Test" screen, which is used to check whether the Modem is properly connected to the network. Follow the on-screen instructions to perform the test.



Ping Test

Selecting **Ping Test** from the Utilities screen generates the "Ping Test" screen, which is used to check whether the Modem is properly connected to the Internet. Follow the on-screen instructions to perform the test.



Reboot

Selecting **Reboot** from the Utilities screen generates the "Reboot" screen. From this screen, the Modem can be rebooted. To do this:

1. From the first Reboot screen, click **Reboot**.

2. A confirmation window appears. Click **OK**.

3. The Modem reboots. Read the onscreen information in the screen that appears.

When the Modem's Power light stops flashing, the Modem has rebooted.

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Troubleshooting 8

This chapter contains a list of problems that may be encountered while using the Modem, and techniques to try and overcome the problem. Note that these techniques may not solve the problem. This chapter also include a list of frequently asked questions.

Troubleshooting

LAN Connection Failure

- Ensure the Modem is properly installed, the LAN connections are correct, and the power is on.
- Confirm the computer and Modem are on the same network segment. If unsure, let the computer get the IP address automatically by initiating the DHCP function (see "DHCP Server" in chapter 3), then verify the computer is using an IP address within the default range (192.168.0.2 through 198.168.0.254). If the computer is not using an IP address within the range, it will not connect to the Modem.
- Ensure the Subnet Mask address is set to 255.255.255.0 by clicking **Status** in the "Main Menu" screen.

Cannot Connect to the Internet

- Make sure the phone line is connected to the Line port of the modem and the DSL light glows solid green.
- Make sure the Internet light glows solid green.
- If the DSL lightis blinking, contact TDS for a line test, as DSL connectivity has been lost.
- If the Internet light glows red, try power cycling the unit (turning it off, then on). A red Internet light indicates the rejection of username\password by the ISP.
- Ensure both ends of the power cord and all network cables are properly connected.

- Ensure the Subnet Mask address is set to 255.255.255.0 by clicking **Status** in the strip of icons at the top of any Modem GUI screen.

- Verify the Modem's settings are the same as the computer by clicking **Status** in the strip of icons at the top of any Modem GUI screen.

s If running Windows 2000 or XP, check the computer's TCP/IP settings. Select **Start**, **Run**, enter

CMD

in the "Open" text box, then press **OK**. A "DOS" window appears, with a blinking cursor (prompt). Enter

ipconfig

at the cursor, then press **Enter** on the keyboard.
The IP address of the Ethernet adapter should appear in the DOS window. Ensure the IP address in the 192.168.0.x network (with "x" defining a range from 2 though 255).
If the Ethernet adapter is showing an incorrect IP address, enter

ipconfig /release

at the cursor, then press **Enter** on the keyboard, which sets all values back to 0 (zero). Next, enter

ipconfig /renew

at the cursor, then press **Enter** on the keyboard (this process may take a few seconds). The renewed IP address should be on the 192.168.0.x network.
If an error occurs, or the IP address renews with an address outside the 192.168.0.x network, contact the ISP immediately

- Ensure the browser is set to "Never dial a connection" and there are no previous LAN settings.
To check this, go to **Start**, **Settings**, **Control Panel**. In the Control Panel, double-click **Internet Options**. When the "Internet Properties" window appears, ensure that the "Never dial a connection" option is activated, then click **LAN Settings**. When the "Local Area Network (LAN) Settings" window appears, ensure that no settings are activated. If there are settings activated, deactivate them.

- Shutdown and restart the computer. After the computer restarts, unplug the power cord from the Modem and plug it back in. When the lights glow solid green, try accessing the Internet.

Time out error occurs when entering a URL or IP Address

- Verify all the computers are working properly.
- Ensure the IP settings are correct.
- Ensure the Modem is on and connected properly.
- Verify the Modem's settings are the same as the computer by clicking **Status** in the strip of icons at the top of any Modem GUI screen.

s Check the cable/DSL modem by attempting to connect to the Internet.

Frequently Asked Questions

This section includes a list of questions concerning the Modem, and answers to those questions.

General

I have run out of Ethernet ports on my Modem. How do I add more computers?

Plugging in an Ethernet hub or switch expands the number of ports on the Modem. Run a standard Ethernet cable from the "Uplink" port of the new hub or switch to an Ethernet port on the Modem.

Which protocols does the Modem support?

The internal LAN connections support multiple protocols (e.g. TCP/IP, NetBEUI, IPX/SPX, and AppleTalk). The External WAN connection supports only TCP/IP.

Which connection speeds does the Modem support?

The LAN connections on the Modem support 10/100 Mbps. The WAN connection supports 8 Mbps, because of the physical restrictions placed on broadband connections.

Will my Xbox work with the Modem?

Yes, the Modem is compatible with the Xbox. You need to set a static IP on the Xbox in the Xbox live network settings, and forward ports 3074 (both UDP and TCP), 53 (both UDP and TCP), and 88 (UDP) if you run into DSL resolution errors.

Is the Modem flash-upgradeable? How do I do it?

Yes, the firmware is upgradeable. You can find a link to the firmware site under Utilitiesî in the Web-based configurator. We recommend contacting the ISP for assistance to avoid any issues running firmware upgrades, and to confirm you have the correct firmware before upgrading the unit.

Does the Modem function as a DSL modem?

Yes, the Modem has a built-in DSL Modem.

Network

I use my laptop at work and at home. Is there something special I need to do to make it work in both places?

Yes. Reconfigure your network setting (Workgroup, Domain, Password, User name, IP addressing or any other specific settings used by your company). You may also use third party software like NetSwitcher to automatically switch between different configurations.

What is the valid IP range I can use for my home network?

The valid IP range for the Modem is 192.168.0.2 to 192.168.0.254 by default.

How do I find out what IP address my computer is using?

Windows 2000, and XP - Select **Start**, **Run** and type "cmd." Press **Enter**. When the command screen appears, type "ipconfig" and press **Enter**.

I used DHCP to configure my network. Do I need to restart my computer to refresh my IP address?

No. Follow these steps to refresh your IP address:

Windowsv 2000 - Select **Start**, **Run**, type "cmd," and press **Enter**. At the DOS prompt, type "ipconfig /release," then type "ipconfig /renew."

Windows XP - Unplug the Ethernet cable or wireless card and plug it back in.

Can I run an application located on another computer over the network?

Yes, if the application is designed to run over a network.

Can I play games between computers on my network, or on the Internet?

Yes, if the games were designed for multi-player or LAN play. For specific information about whether a game is capable of Internet or LAN play, refer to the game documentation. Some games require ports to be forwarded to host or join games over the Internet.

I have an FTP or Web server on my network. How can I make it available to users on the Internet?

For a Web server, enable port forwarding for port 8088 to the IP address of the server and set up the Web server to receive on that port, as well. (Configuring the server to use a static IP address is recommended.)
For an FTP server, enable port forwarding for port 21 to the IP address of the server. (Configuring the server to use a static IP address is recommended.)

Connections

How many computers can be connected through the Modem?

The Modem is capable of 254 connections, but it is recommended to have no more than 45 connections. As you increase the number of connections, you decrease the available speed for each computer.

Security

What is the default username for the Modem?

The default username for the router is "admin" and the default password is "password" (all lower case, no quotation marks). To activate the password to protect the Modem, change the default password. Remote management will not be available on the Modem until the default password is changed.

Does the Modem function as a firewall?

Yes. The Modem provides its security through the use of NAT firewall, which acts as a physical barrier between your network and the Internet.

What is NAT and how does it protect my network?

NAT (Network Address Translation) is a type of security that masks the private IP addresses of the computers on your network with a single public IP address. With NAT, the private IP address of the computers on your network is never transmitted over the Internet.

Which Virtual Private Networking (VPN) protocols are supported?

The Modem supports pass-through for PPTP, L2TP, and IPSec.

Specifications

A

General

Model Number

GT724R (DSL Modem)

Standards

IEEE 802.3 (10BaseT)
IEEE 802.3u (100BaseTX)
G.dmt
G.lite
t1.413
RFC 1483, 2364, 2516

Protocol

LAN - CSMA/CD
WAN - PPP, DHCP, Static IP

WAN

Full-rate ADSL Interface

LAN

10/100 RJ-45 switched port

Speed

LAN Ethernet: 10/100 Mbps auto-sensing

Cabling Type

Ethernet 10BaseT: UTP/STP Category 3 or 5
Ethernet100BaseTX: UTP/STP Category 5

LED Indicators

Power, DSL, Internet, Ethernet (4)

Environmental

Power

External, 12V DC, 600mA

Certifications

FCC Class B, FCC Class C (part 15, 68), CE Mark Commercial, UL

Operating Temperature

0º C to 40º C (32ºF to 104ºF)

Storage Temperature

-20ºC to 70ºC (-4ºF to 158ºF)

Operating Humidity

10% to 85% non-condensing

Storage Humidity

5% to 90% non-condensing

Setting up Static IP on a Computer

B

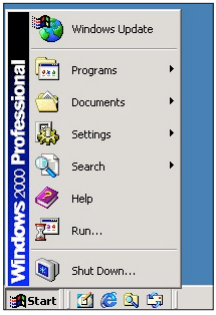
To communicate with the Modem from a computer on the network (to use the Modem's GUI, for example), the user may have to switch the IP address settings from DHCP-enabled to static IP, so that the computer and the Modem are on the same subnet.

To set up static IP on a computer, select the operating system and follow the instructions.

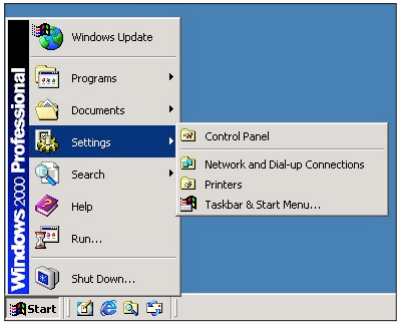
☞ ***Note***: The following procedures are based on the Modem's factory default IP address. If the Modem's IP address has been changed, enter the new IP address when instructed to enter an IP address.

Windows 2000

1. From the desktop, click on the **Start** button in the lower left corner.
2. From the menu that appears, select **Settings**.

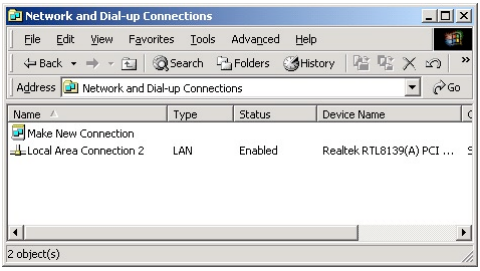


3. Another menu appears. Select **Control Panel**.

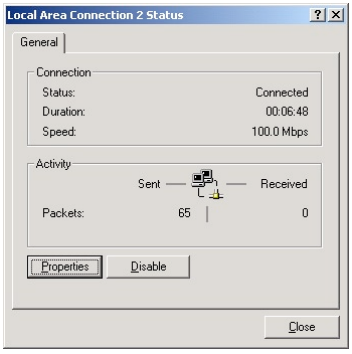


4. When the "Control Panel" window appears, double-click **Network and Dial-up Connections**.

5. In the "Network and Dial-up Connections" window, double-click **Local Area Connection**. A number may be displayed after the Local Area Connection. If there is more than one Local Area Connection listed, locate the one that corresponds to the network card installed in the computer by finding the name of the network card in the "Device Name" column.

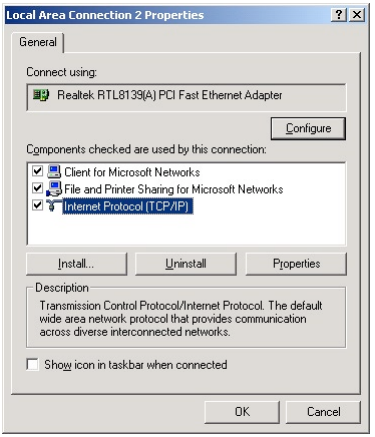


6. The "Local Area Connection Status" window appears. Select **General**, then click **Properties**.

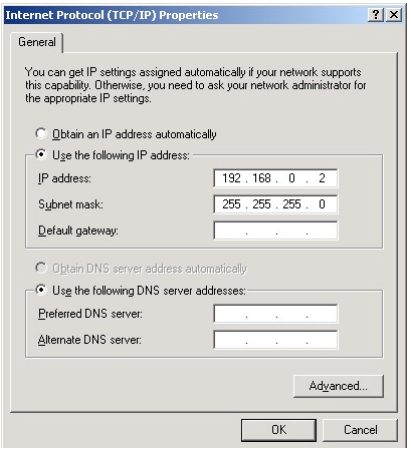


7. The "Local Area Connection Properties" window appears. Click **General**.

8. In the "Components checked are used by this connection" list box, double-click **Internet Protocol (TCP/IP)**.



9. The "Internet Protocol (TCP/IP) Properties" window appears.



10. In the **General** tab, make sure the radio button next to "Obtain an IP Address automatically" is active (contains a black dot). If the radio button is already active, leave it alone.

11. Enter the following numbers in the "IP Address" text box:

192.168.0.2

Press the space bar on the keyboard to add the periods between the numbers.

12. Enter the following numbers in the "Subnet mask" text box:

255.255.255.0

Press the space bar on the keyboard to add the periods between the numbers.

13. Enter the following numbers in the "Default gateway" text box:

192.168.0.1

Press the space bar on the keyboard to add the periods between the numbers.

14. Click **OK**. The "Internet Protocol (TCP/IP) Properties" window disappears.

15 In the "Local Area Connection Properties" window, click **OK**. The Local Area Connection Properties window disappears.

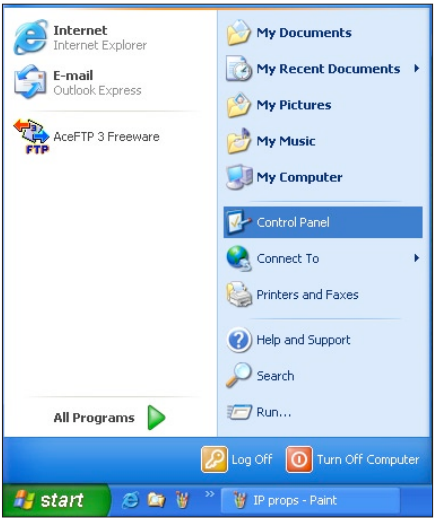
16. Click **Close** in the Local Area Connection Status window. The window disappears.

17. Close the Network and Dial-up Connections window by clicking on the "**x**" button at the upper right corner of the window.

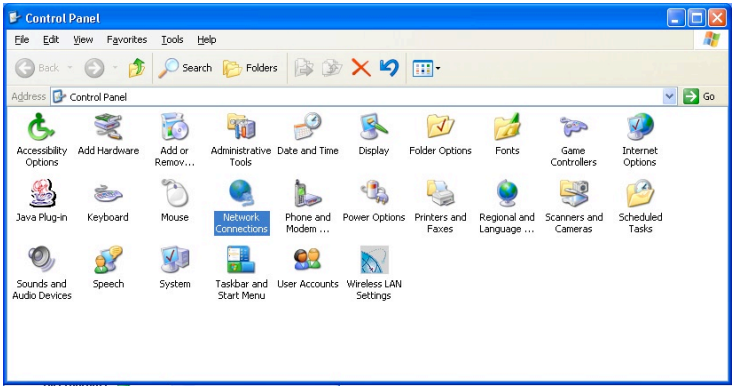
The computer is now set up with a static IP address, allowing the user to access the Modem's GUI.

Windows XP

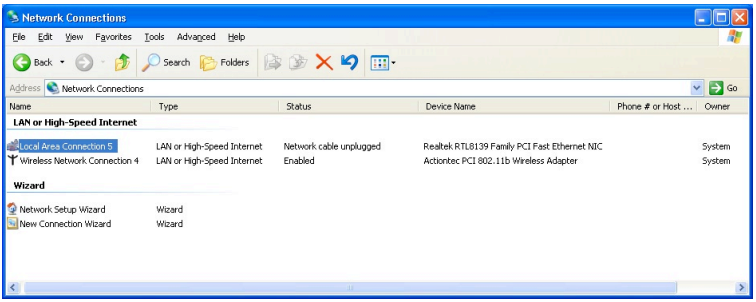
1. From the desktop, click **Start** button in the lower left corner.
2. From the menu that appears, select **Control Panel**.



3. When the "Control Panel" window appears, double-click **Network Connections**.

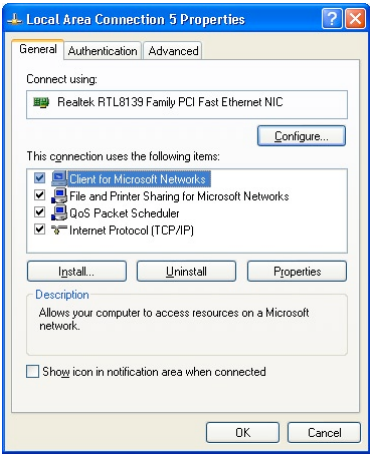


4. In the "Network Connections" window, double-click **Local Area Connection**. A number may be displayed after the Local Area Connection. If more than one Local Area Connection is listed, locate the one that corresponds to the network card installed in your computer by finding the name of the network card in the "Device Name" column.

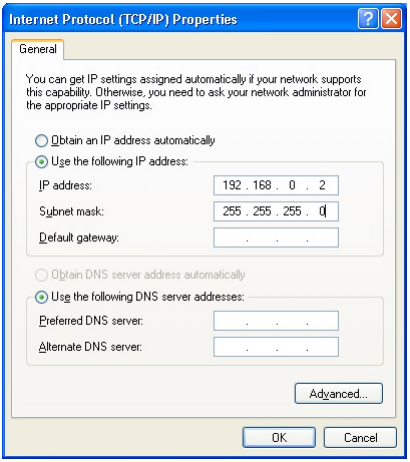


5. The "Local Area Connection Properties" window appears. Select **General**.

6. In the "This connection uses the following items" list box, double-click **Internet Protocol (TCP/IP)**.



7. The "Internet Protocol (TCP/IP) Properties" window appears.



8. In the **General** tab, make sure the radio button next to "Use the following IP Address" is active (contains a black dot). If the radio button is already active, leave it alone.

9. Enter the following address in the "IP Address" text box:

192.168.0.2

Enter the periods in the address by pressing the space bar on the keyboard.

10. Enter the following address in the "Subnet mask" text box:

255.255.255.0

Enter the periods in the address by pressing the space bar on the keyboard.

11. Enter the following address in the "Default gateway" text box:

192.168.0.1

Enter the periods in the address by pressing the space bar on the keyboard.

12. Click **OK**. The Internet Protocol (TCP/IP) Properties window disappears.

13 In the Local Area Connection Properties window, click **Close**. The Local Area Connection Properties window disappears.

14. Click **Close** in the Local Area Connection Status window. The window disappears.

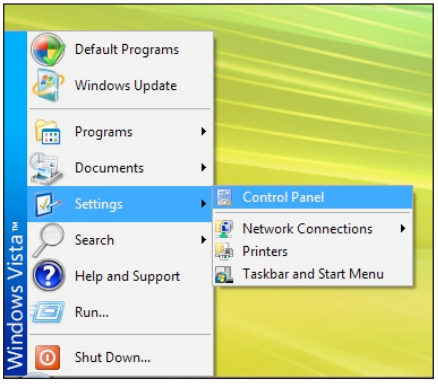
15. Close the Network and Dial-up Connections window by clicking on the "**x**" button at the upper right corner of the window.

The computer is now set up with a static IP address, allowing the user to access the Modem's GUI.

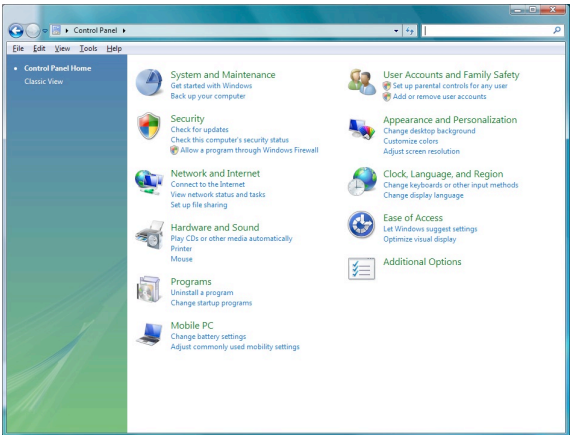
Windows Vista

1. From the desktop, click **Start** button in the lower left corner.

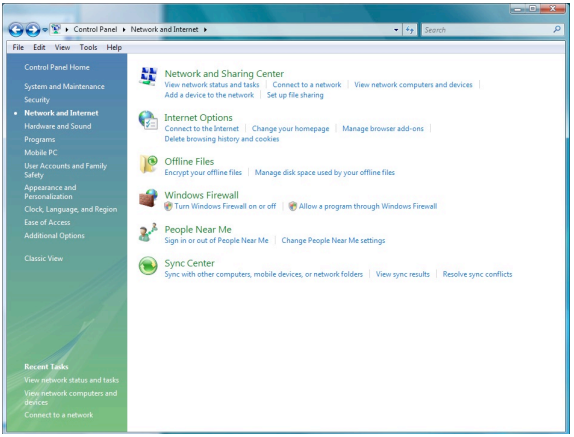
2. From the menu that appears, select **Control Panel**.



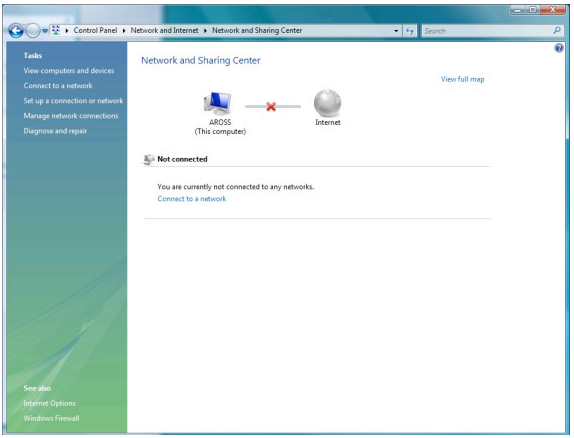
3. When the "Control Panel" window appears, double-click **Network and Internet**.



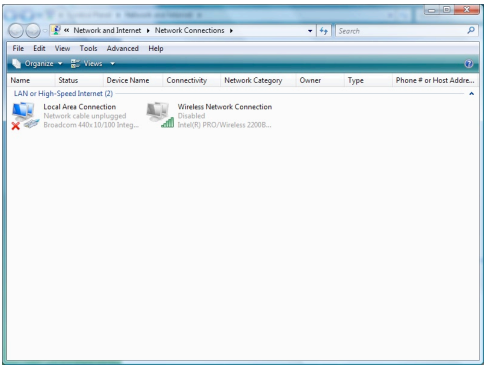
4. The "Network and Internet" window appears. Click **Network and Sharing Center**.



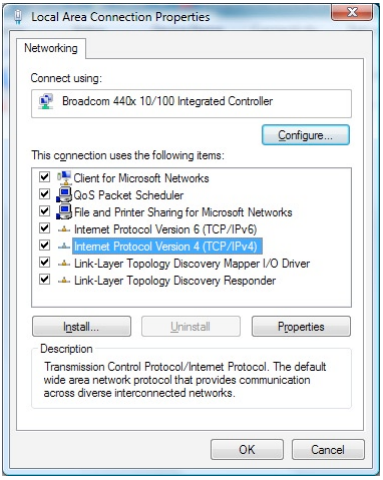
5. The "Network and Sharing Center" screen appears. From the menu on the left, click **Manage network connections**.



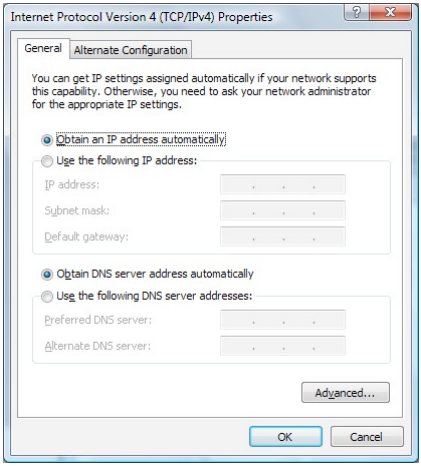
6. The "Network Connections" screen appears.. Double-click **Local Area Connection**.



7. The "Local Area Connection Properties" window appears. In the "This connection uses the following items" list box, double-click **Internet Protocol (TCP/IP)**.



8. The "Internet Protocol (TCP/IP) Properties" window appears.



9. In the **General** tab, make sure the circle next to "Use the following IP Address" is selected. When active, a black dot appears in the circle. If the circle already contains a black dot, leave it alone.

10. Enter the following address in the "IP Address" text box:

192.168.0.2

Enter the periods in the address by pressing the space bar on the keyboard.

11. Enter the following address in the "Subnet mask" text box:

255.255.255.0

Enter the periods in the address by pressing the space bar on the keyboard.

12. Enter the following address in the "Default gateway" text box:

192.168.0.1

Enter the periods in the address by pressing the space bar on the keyboard.

13. Click **OK**. The Internet Protocol (TCP/IP) Properties window disappears.

14. In the Local Area Connection Properties window, click **Close**. The Local Area Connection Properties window disappears.

15. Click **Close** in the Local Area Connection Status window. The window disappears.

16. Close the rest of the open windows by clicking on the "**x**" button at the upper right corner of the window.

The computer is now set up with a static IP address.

Service Acronyms

C

The following information is related to the Firewall options (Custom, High, Medium, and Low) section in the "Configuring Security Settings" chapter of this manual. This appendix explains the meaning of the service acronyms included with the various levels of firewall security, and the UDP and TCP ports used by each service.

Service Acronym Definitions

DNS

Domain **N**ame **S**ystem. A data query system used to translate host names into Internet addresses (i.e., www.somewebsite.com translates to 888.999.000.111). Uses UDP 53 and TCP 53.

EPMAP

End**P**oint **Map**per. Uses UDP 135 and TCP 135.

FTP

File **T**ransfer **P**rotocol. A protocol used to transfer files over the Internet. Uses TCP 20 and 21.

HTTP

Hyper**T**ext **T**ransfer **P**rotocol. This protocol delivers information over the Internet, and is used when a computer connects to a Web site via an Internet browser. Uses TCP 80.

HTTPS

Hyper**T**ext **T**ransfer **P**rotocol using **S**ecure Socket Layer. A secure version of the protocol that delivers information over the Internet. Uses UDP 443 and TCP 443.

IMAP, IMAPv3

Internet **M**essage **A**ccess **P**rotocol. Protocols for retrieving E-mail messages. IMAP uses TCP 143; IMAPv3 uses TCP 220.

IPSEC IKE, IPSEC ESP

IP Security. Protocols which support the secure exchange of packets at the IP layer**.** Uses UDP 500.

LDAP

Lightweight **D**irectory **A**ccess **P**rotocol. A set of protocols for accessing information directories. Uses TCP 389.

MICROSOFT-DS, -GC

-DS uses UDP 445 and TCP 445; -GC uses TCP 3268.

NETBIOS-NS, -DGM, -SSN

Network **B**asic **I**nput **O**utput **S**ystem. Three types of DOS BIOS augmentation which add functions for local area networks (LANs). -NS uses UDP 137 and TCP 137; -DGM uses UDP 138; -SSN uses TCP 138.

NNTP

Network **N**ews **T**ransfer **P**rotocol. A protocol used to distribute and retrieve news articles over the Internet. Uses TCP 119.

POP3

Post **O**ffice **P**rotocol 3. Another protocol used to transfer E-mail between computers. Usually employs a pop3 server, and is used to receive mail only. Uses TCP 110.

PROFILE

Uses TCP 136.

SMTP

Simple **M**ail **T**ransfer **P**rotocol. A protocol used to transfer E-mail between computers over the Internet. Can be used to send and receive mail. Uses TCP 25.

SNMP

Simple **N**etwork **M**anagement **P**rotocol. A set of protocols for managing networks. Uses UDP 161.

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Glossary

D

Access Point

A device that allows wireless clients to connect to one another. An access point can also act as a bridge between wireless clients and a "wired" network, such as an Ethernet network. Wireless clients can be moved anywhere within the coverage area of the access point and remain connected to the network. If connected to an Ethernet network, the access point monitors Ethernet traffic and forwards appropriate Ethernet messages to the wireless network, while also monitoring wireless traffic and forwarding wireless client messages to the Ethernet network.

ATM (Asynchronous Transfer Mode)

A networking technology based on transferring data in fixed-size packets

Client

A desktop or mobile computer connected to a network.

DHCP (Dynamic Host Configuration Protocol)

A protocol designed to automatically assign an IP address to every computer on your network.

DNS (Domain Name System) Server Address

Allows Internet host computers to have a domain name and one or more IP addresses. A DNS server keeps a database of host computers and their respective domain names and IP addresses so that when a user enters a domain name into a Web browser, the user is sent to the proper IP address. The DNS server address used by computers on the home network corresponds to the location of the DNS server the ISP has assigned.

DSL (Digital Subscriber Line) Modem

A modem that uses existing phone lines to transmit data at high speeds.

Encryption

A method to allow wireless data transmissions a level of security.

ESSID (Extended Service Set Identifier)

A unique identifier for a wireless network. Also known as "SSID."

Ethernet Network

A standard wired networking configuration using cables and hubs.

Firewall

A method preventing users outside the network from accessing and/or damaging files or computers on the network.

Gateway

A central device that manages the data traffic of your network, as well as data traffic to and from the Internet.

IP (Internet Protocol) Address

A series of four numbers separated by periods identifying a unique Internet computer host.

ISP Gateway Address

An IP address for the Internet router. This address is only required when using a cable or DSL modem.

ISP (Internet Service Provider)

A business that allows individuals or businesses to connect to the Internet.

LAN (Local Area Network)

A group of computers and devices connected together in a relatively small area (such as a house or an office). A home network is considered a LAN.

MAC (Media Access Control) Address

The hardware address of a device connected to a network.

NAT (Network Address Translation)

A method allowing all of the computers on a home network to use one IP address, enabling access to the Internet from any computer on the home network without having to purchase more IP addresses from the ISP.

PC Card

An adapter that inserts in the PCMCIA slot of a computer, enabling the communication with a device.

PPPoE (Point-To-Point Protocol over Ethernet)/ PPPoA (Point-To-Point Protocol over ATM)

Methods of secure data transmission.

Router

A central device that manages the data traffic of your network.

Subnet Mask

A set of four numbers configured like an IP address used to create IP address numbers used only within a particular network.

SSID

See "ESSID."

TCP/IP (Transmission Control Protocol/Internet Protocol)

The standard protocol for data transmission over the Internet.

WAN (Wide Area Network)

A network that connects computers located in separate areas, (i.e., different buildings, cities, countries). The Internet is a WAN.

WECA (Wireless Ethernet Compatibility Alliance)

An industry group that certifies cross-vender interoperability and compatibility of IEEE 802.11b wireless networking products and promotes the standard for enterprise, small business, and home environments.

WLAN (Wireless Local Area Network)

A group of computers and other devices connected wirelessly in a small area.

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Notices

Regulatory Compliance Notices

Class B Equipment

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by implementing one or more of the following measures:

- Reorient or relocate the receiving antenna;
- Increase the separation between the equipment and receiver;
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected;
- Consult the dealer or an experienced radio or television technician for help.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by A*ction*tec Electronics, Inc., may void the user's authority to operate the equipment.

Declaration of conformity for products marked with the FCC logo – United States only.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference;

2. This device must accept any interference received, including interference that may cause unwanted operation.

☞ ***Note***: To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

For questions regarding your product or the FCC declaration, contact:

*Action*tec Electronics, Inc.
760 North Mary Ave.
Sunnyvale, CA 94086
United States
Tel: (408) 752-7700
Fax: (408) 541-9005

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Return the product to:
(In the United States)
*Action*tec Electronics, Inc.
760 North Mary Avenue
Sunnyvale, CA 94085

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